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UNCLAS SECTION 01 OF 03 DURBAN 000118

SENSITIVE  
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TAGS: [EMIN](#) [ENRG](#) [EPET](#) [EINV](#) [ETRD](#) [ECON](#) [SENV](#) [SF](#)  
SUBJECT: RICHARDS BAY'S HEAVY MINERAL INDUSTRY

REF: A) 05 DURBAN 00019; B) 09 PRETORIA 2498

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¶1. (U) Embassy Minerals and Energy Officer and Specialist, and Consulate Pol/Econ Officer, visited Richards Bay Minerals and Exxaro's KZN Sands in Richards Bay, KwaZulu-Natal (KZN) on November 17 and 18. This cable is a collaboration between Embassy Pretoria and Consulate Durban.

¶2. (SBU) SUMMARY: Experienced titanium and zircon producer and mineral sands mining company, Richards Bay Minerals (RBM), is a robust operator that looks set to out-compete its local rival Exxaro KZN Sands and survive the 2008-2009 global recession. RBM's challenges of increasing electricity tariffs, social responsibility, and a difficult market for its "lifestyle" products are offset by a highly experienced management team, a well refined mining and beneficiation process, industry leading rehabilitation practices, and a sound social and labor plan. Unlike Exxaro KZN Sands (EKZNS), who have only two years of mineral reserves and a less reliable beneficiation process, RBM is supported by its Rio Tinto and BHP Billiton joint ownership. Subsequent to the visit, on December 1, Exxaro the holding company of EKZNS, announced their intention to curtail its mineral sands operations in favor of a focus on coal. Such action is likely to impact negatively on employment and social welfare projects in the surrounding communities, free up power and, possibly, provide an acquisition opportunity for RBM. End Summary.

Mining Heavy Mineral Sands from Dunes

¶3. (U) Richards Bay Minerals (RBM) and Exxaro KZN Sands (EKZNS) compete for the recovery of ilmenite, rutile and zircon from coastal dune deposits around Empangeni and Richards Bay in northern KZN. RBM excavates 33 million tons run of mine (ROM) annually from beach dunes along a 60km strip along the KZN north coast (made up of mineral leases: Zulti North, Tisand, and Zulti South). EKZNS is about one fifth the size of RBM, with a six million ton annual ROM from inland, historic dunes at Hillendale mine, south of Empangeni.

Lifestyle Dependent Market - Sun Screen and More

¶4. (SBU) Ilmenite, rutile and zircon make up about five percent volume of KZN's heavy mineral sands and yield titanium dioxide (TiO2), pig iron, and zircon, used in a wide variety of lifestyle and industrial products. TiO2 pigment accounts for about 94 percent of world demand for titanium; three percent is

used to produce titanium metals and metal alloys. The pigment is ultra white, highly refractive and non-toxic, making it sought after for use in: paint, plastics, pharmaceuticals (toothpastes, sun screens, and cosmetics) and candy. Titanium metal is used in the aerospace industry for its high strength-to-weight ratio. Zircon is used in the production of ceramics, refractories, jewellery and electronics, and high purity pig iron is used for ductile iron castings such as engine blocks. South Africa is ranked second behind Australia for TiO<sub>2</sub> production and supplies about 20 percent of world demand. RBM holds the largest market share with an annual production of one million tons of titanium slag (containing about 85 percent TiO<sub>2</sub>) and 525,000 tons of iron. Comparatively, Exxaro produces 250,000 tons of titanium slag and 50,000 tons of iron.

Dig, Separate, Smelt, Ship

15. (SBU) Titanium, iron and zircon beneficiation is achieved through a process of: bulk dune mining, gravity assisted concentration of the heavy minerals, magnetic and electrostatic separation, and smelting. RBM and EKZNS work slightly different deposits and this affects the way they mine and rehabilitate. RBM reserves comprise a more recent series of coastal barrier dunes along the KZN north coast. They create a large artificial freshwater pond in the dunes and use this to float dredgers and a concentrator plant. As the mining face of the dune collapses into the pond, dredgers suck up the slurry and pump it to a floating concentrator. At this point, the heavy minerals are separated from the sand using a gravity process and stockpiled as heavy mineral concentrate (HMC) for transportation to the smelter site. The pond moves parallel to the sea, as the mining operation proceeds. Smelting separates heavier pig iron matte; which is tapped, cast and shipped, and lighter titanium slag, which is tapped, cast and crushed to customer specifications. EKZNS mines older, clay rich deposits that are more labor intensive, requiring man-held hydraulic "guns" to collapse the dune and create a slurry-feed to a land-based concentrator

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plant. While EXZNS's processing technique is similar to RBM's, EXZNS employs new direct current-arc smelting technology as opposed to RBM's more reliable "six-in-line" alternating current smelter.

Rehabilitation

16. (SBU) Both KZN operators are required by legislation to rehabilitate their lease areas to a condition "similar to that which existed prior to mining." This mandate is far more complicated for RBM, which is required to, in part, reinstate the ecologically sensitive coastal dune system. RBM is a local industry leader in the field, rehabilitating one third of their mined out lease with indigenous coastal dune forest and two thirds with Beefwood for a local charcoal industry. The complex coastal dune forest is restored through a "successional growth" process (starting with cereals, grassland and then acacia shrubland) and requires about 30 years to reach maturity. They leave the 200-meter dune cordon adjacent to the beach untouched, ensuring a "reservoir" from which seed and animal colonization can take place. EKZNS is required to restore sugar cane farming in their comparatively simpler rehabilitation program. They achieve this by resculpting the original dune topography, covering this with remixed clay (or "slimes") and sand, pioneering with a year's growth of Rhodes grass, and replanting carefully selected sugar cane strains. The Embassy/Consulate team witnessed pristine-looking 30-year growth in one area that had undergone the RBM rehabilitation process.

Social Responsibility

17. (U) Both operators are vital "providers" for the Richards Bay and Empangeni regional economy, a relatively poor area in South Africa. Their challenge and social responsibility is to implement plans that ensure economic growth continues post mining. Both RBM and EKZNS invest significantly in community

development, education and healthcare; business development, and promotion of black economic empowerment.

#### Employees

¶8. (SBU) EKZNS, with an efficiency of 8,500 tons per employee (per annum), is a far more labor intensive operation than RBM with 20,000. RBM has a permanent complement of 1700 employees and about 1000 contractors. The company estimates that 70 percent of the workforce is historically disadvantaged South Africans (HDSA) and 10 percent is female. By comparison EKZNS has a permanent workforce of 700, of which 80 percent is HDSA and 13 percent is female, and 300 contractors. Both operators estimate that about 75 percent of their employees have voluntarily tested for HIV/AIDS and that the prevalence is about 19 percent. This is lower than the general prevalence in the area, reflecting greater education in their skilled workforces. They both provide antiretroviral treatment (ARV) to the affected employees and their immediate families.

#### Challenges

¶9. (SBU) Cost and availability of power, increasing poverty levels in surrounding and affected communities, and difficult market conditions are the key challenges currently facing the heavy minerals mining firms. The uncertainty over the future cost of electricity affects production planning. RBM is storing equipment for the cogeneration of smelter power in the event that the tariff increases to above a "break-even" price of 9.25c (US cents) per kilowatt hour; it is currently 4.51c. Both producers estimate that electricity accounts for 25 percent of their cost basket. RBM and EKZNS are both active in programs aimed at reducing poverty, but are struggling to overcome the impact of HIV/AIDS, lack of entrepreneurship, poor education levels, and population growth in their surrounding communities. RBM has been less affected by the 2008-2009 global economic downturn than EKZNS, as it has strong marketing links through Rio Tinto Iron and Titanium and long-term contracts for exported product. Both producers benefit from being within a 30km rail trip to Richards Bay's bulk-handing harbor. EKZNS appears to be struggling with sales and - at the time of the visit - had a 20,000-ton stockpile of unsold product.

#### Strategic Outlook: Business as Usual versus "On Edge"

¶10. (SBU) The two mineral sands operators present significantly different strategic futures. RBM has a remaining life of mine

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(LOM) of about 20 years, a well tested and refined recovery process, and is owned by diversified majors (Rio Tinto and BHP Billiton) that are committed to these commodities. EKZNS has a 2 year LOM, a relatively untested recovery process, and is owned by Exxaro, which is focused on expanding coal mining concerns. Without its new potential "Fairbreeze" resources located about 20km south of the Hillendale Mine (which have yet to be proved as reserves), an improved TiO2 and pig iron market and a renewed commitment from its holding company, EKZNS is likely to be closed in 5 years. In fact, subsequent to our visit, Exxaro announced its intention to focus on coal and close the EKZNS operations in five years.

#### Comment

¶11. (SBU) RBM and EKZNS are important contributors to the local economy of the Richard's Bay area and as such, electricity tariff hikes and the closure of EKZNS's Hillendale Mine are likely to have a significantly negative impact on the region. The curtailing of mining operations could see EKZNS withdraw from its social responsibilities, with an impact on jobs, healthcare and education in affected communities. The impact on the environment will probably be less severe, with the mine on track with its closure and rehabilitation plans. The closure of EKZNS's processing plant is likely to free up power availability for other local industries. These assets (primarily the concentrator and smelter) together with the "Fairbreeze" mineral

resources may represent a useful and cheap acquisition for RBM. The announcement of the closure constitutes a "fire-sale" with few other likely buyers. If EKZNS chooses to mothball its operations, the maintenance costs in a corrosive coastal climate are likely to be high.

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